



**ONC *FAST* Birds of a Feather
Building the Infrastructure
Needed to Reach The
Interoperability Destination**





Presenters – ONC Lead & *FAST* Chief Architects



Stephen Konya

Senior Advisor to the Deputy
National Coordinator for Health IT
HHS/ONC
ONC Lead, FHIR at Scale Taskforce
(*FAST*)



Paul Oates

Senior Enterprise Architect,
Cigna/Evernorth
FAST Chief Architect



Patrick Murta

Chief Interoperability
Architect & Fellow
Humana
FAST Chief Architect





FAST Taskforce Antitrust Notice

- The ONC FHIR At Scale Taskforce (*FAST*) (Hereinafter “Taskforce”) is committed to full compliance with existing federal and state antitrust laws.
- All members involved in the Taskforce effort, including its advisory groups, will comply with all applicable antitrust laws during the course of their activities. During Taskforce meetings and other associated activities, including all informal or social discussions, each member shall refrain from discussing or exchanging competitively sensitive information with any other member. Such information includes, but may not be limited to:
 - Price, premiums, or reimbursement charged or paid for products or services
 - Allocation of customers, enrollees, sales territories, sales of any products or contracts with providers
 - Any other competitively sensitive information that is proprietary to a member company
- If you have any specific questions or concerns, seek guidance from your own legal counsel.
- Members should not bring confidential information or intellectual property (hereinafter “Intellectual Property”) owned by their respective member companies into Taskforce meetings. To the extent such Intellectual Property is shared with the Taskforce that shall not be construed as a waiver of member company’s rights to, or ownership in, the Intellectual Property.





Agenda

- **What is *FAST*?**
- **Big *FAST* News!**
- **Overview of *FAST*'s Work**
- ***FAST* Action Plan Snapshot**
- **Get Involved**





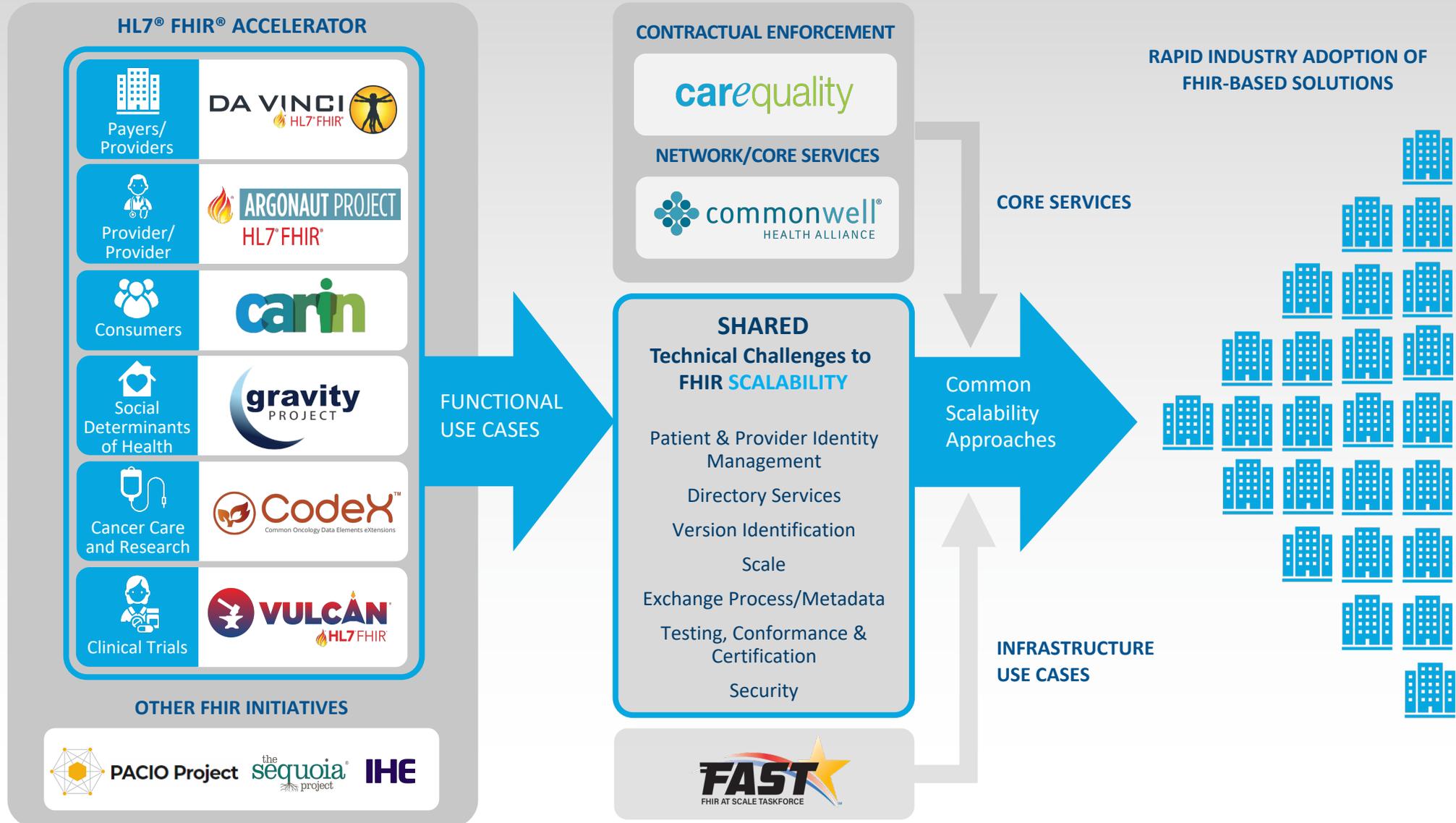
What is *FAST*?

The FHIR at Scale Taskforce (FAST), convened by the Office of the National Coordinator for Health IT (ONC), brings together a highly representative group of motivated healthcare industry stakeholders and health information technology experts.

The group is set to identify HL7[®] Fast Healthcare Interoperability Resources (FHIR[®]) scalability gaps and possible solutions, analysis that will address current barriers and will accelerate FHIR adoption at scale.

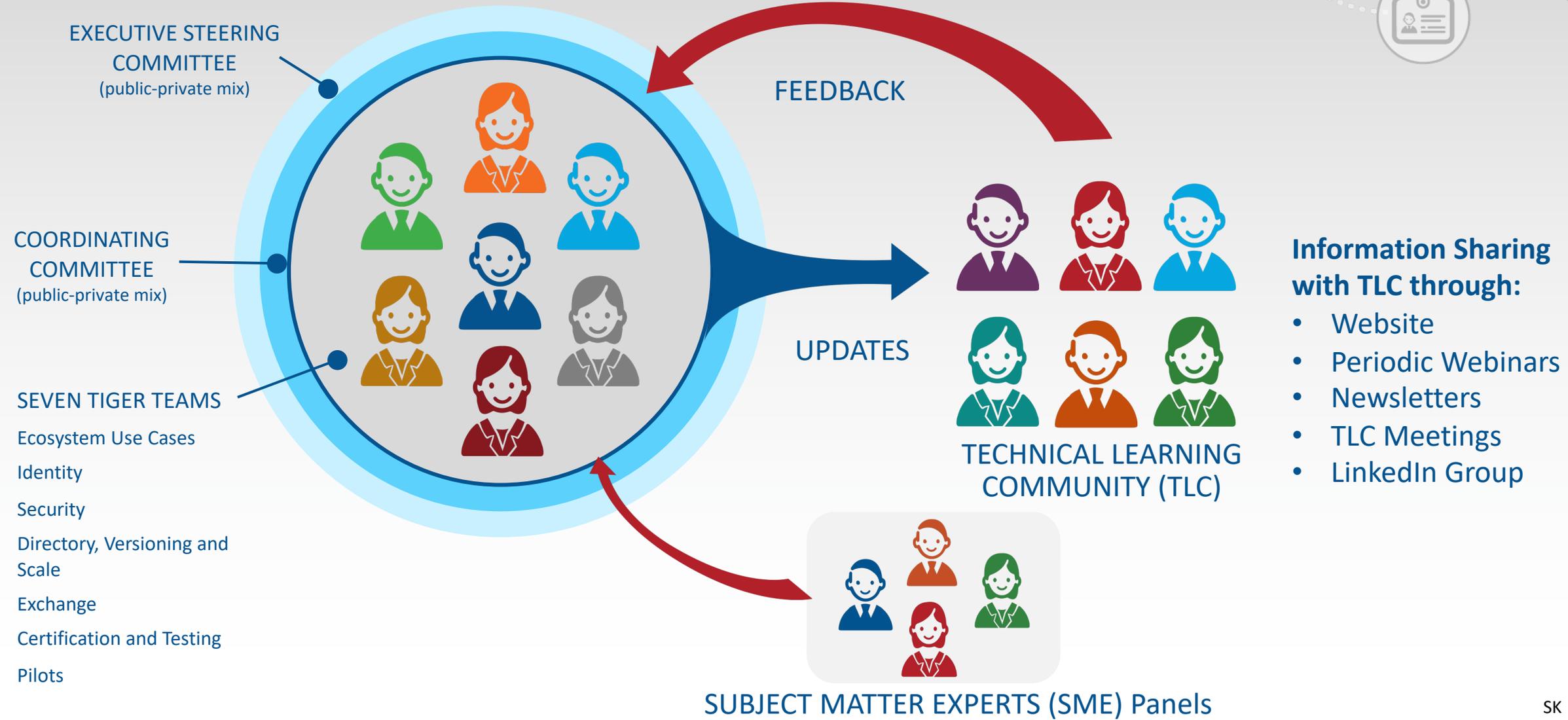


Collaborative Efforts Towards FHIR Adoption





FAST Organization & Community Engagement



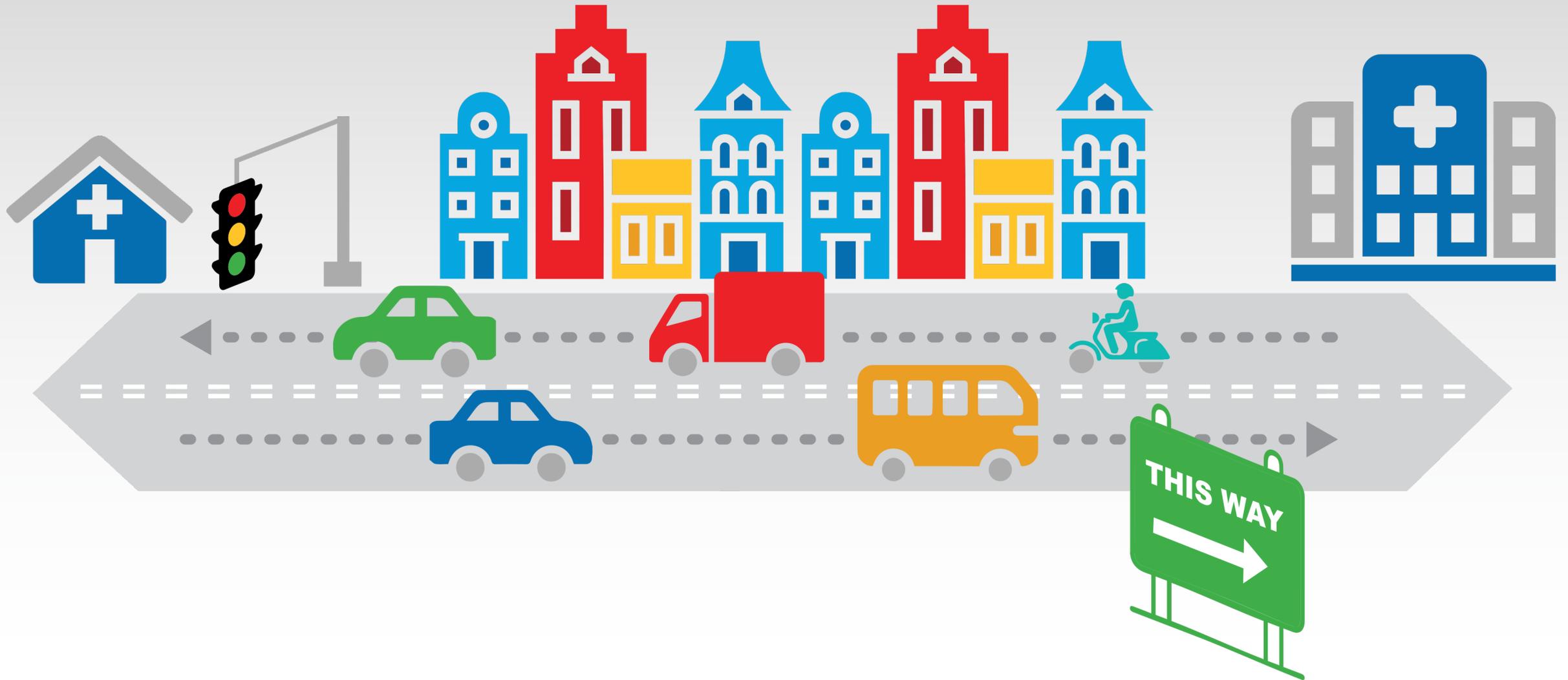


Lack of Consistent Infrastructure Impacts Flow





Well Planned Infrastructure Creates Efficiency



Big News for *FAST*!





FAST Transition to an HL7 FHIR Accelerator

- *FAST* has been exploring paths forward for some time – we've done our homework
- Socialized the idea with *FAST* Members and more broadly in various HL7 groups and public meetings with positive reception
- ONC and CMS support this transition
- A transition work group has been formed

Officially announced yesterday during the HL7 Plenary!



FAST Transition Workgroup



Stakeholder	Representatives
Workgroup Lead	TBD
ONC	Stephen Konya & Alex Kontur, ONC <i>FAST</i> Leads
CMS	Alex Mugge, CMS HIIG or designee
HL7	Wayne Kubick, HL7 CTO
<i>FAST</i> Leadership	Patrick Murta, <i>FAST</i> Chief Architect Paul Oates, <i>FAST</i> Chief Architect Bob Dieterle, <i>FAST</i> Coordinating Committee Member, DVS Tiger Team Co-Lead Alix Goss, <i>FAST</i> ESC Member, DVS Tiger Team Co-Lead Ashish Atreja, <i>FAST</i> ESC Member Lenel James, <i>FAST</i> ESC Member Deepak Sadagopan, <i>FAST</i> ESC Member Hans Buitendijk, <i>FAST</i> ESC Member
Workgroup PM Support	Dana Marcelonis, <i>FAST</i> PM Support



FAST Transition Working Group

- Cross-stakeholder team to build the plan
 - Define scope of *FAST* as Accelerator
 - Finalize Accelerator structure – operating model and governance framework
 - Finalize Accelerator funding model
 - Develop initial financial plans
 - Develop communications plan
 - Recruit initial members
 - Establish initial PMO
 - Begin transition process
- FAST will continue the work already in progress through transition



FAST as FHIR Accelerator – What Could It Look Like?

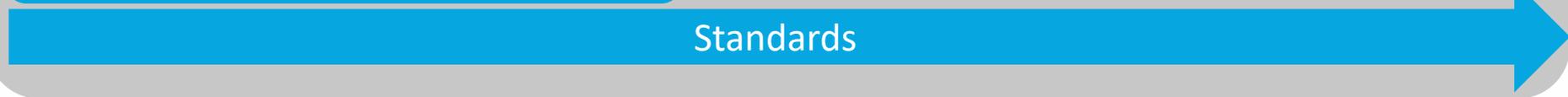
HL7® FHIR® ACCELERATOR / COMMUNITY



 Payers/ Providers	DA VINCI HL7 FHIR	 Provider/ Provider	ARGONAUT PROJECT HL7 FHIR	?	Other FHIR Initiatives
 Social Determinants of Health	gravity PROJECT	 Cancer Care and Research	CodeX™ Common Oncology Data Elements extensions		
 Clinical Research	VULCAN HL7 FHIR	 Consumers	carin		



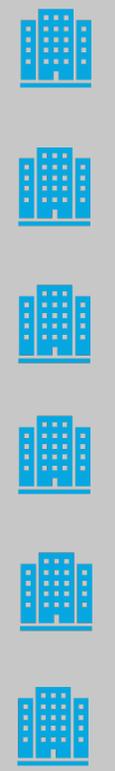
ARCHITECTURE FAST FHIR AT SCALE TASKFORCE	 Sandbox, Testing, Feedback	TBD	 Pilots & Certification	TBD
		HL7 Working Groups		



STAKEHOLDERS

- PACIO Project**
- the sequoia project**
- IHE**
- carequality**
- commonwell HEALTH ALLIANCE**
- And More...**

ADOPTION AND FEEDBACK



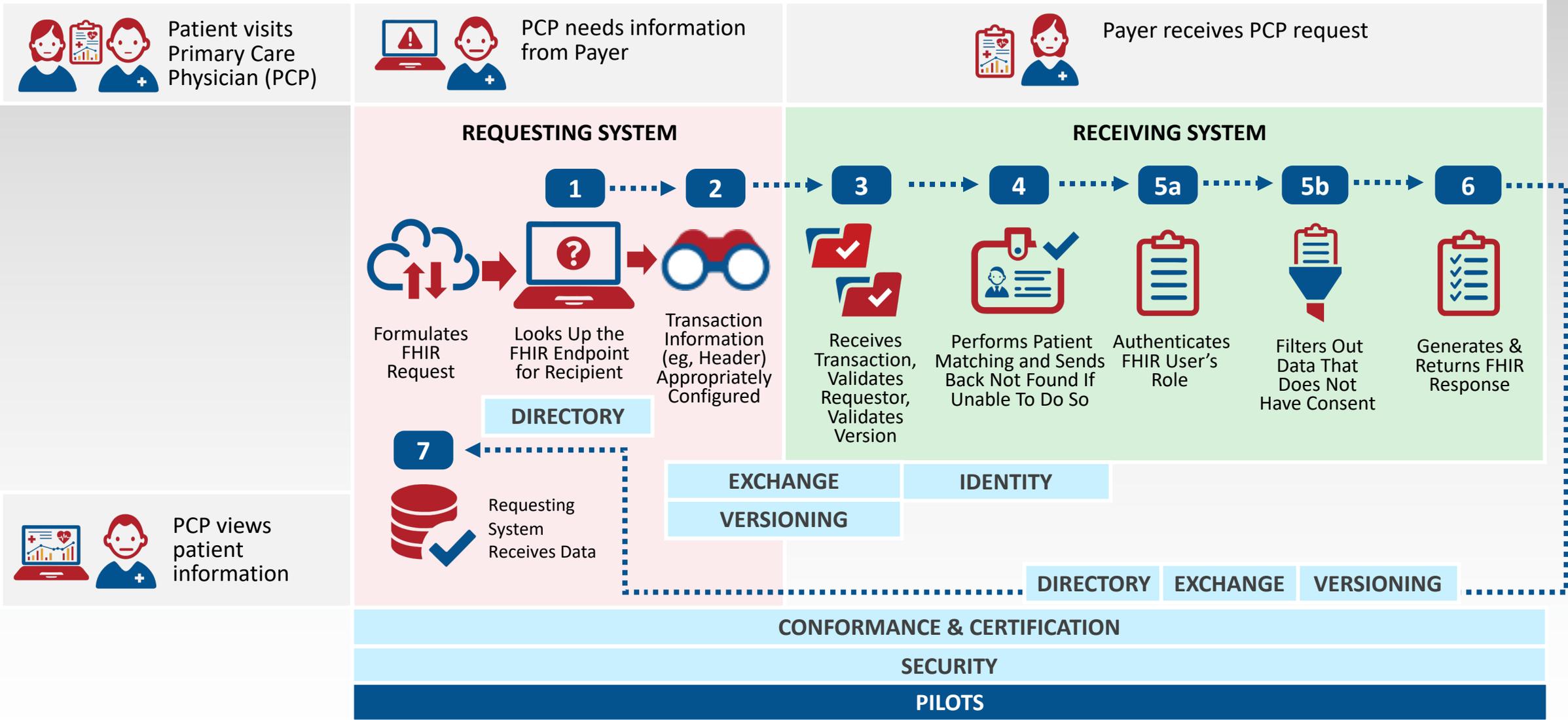
HL7 Governance Structure

Government Participation/ Contributions (ONC, CMS, CDC, VA, DoD, etc.)

FAST Solutions Overview



Example FHIR Transaction Journey





FAST Proposed Solutions

■ Directory, Version & Scale (3) ■ Identity (4) ■ Exchange Process (1) ■ Testing & Certification (1) ■ Security (4)

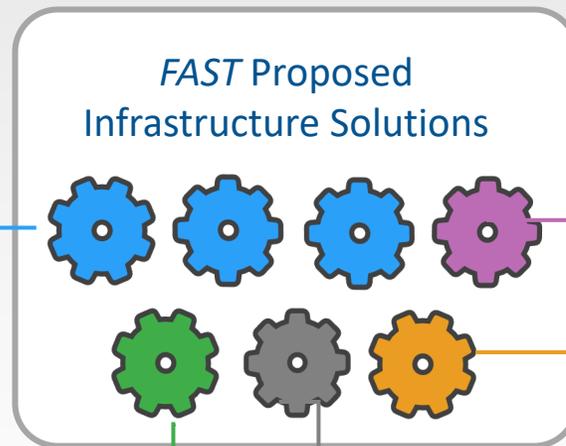
⚙️ A US Wide Solution for a National Healthcare Directory

⚙️ A US Wide Methodology for Supporting Multiple Production Versions of FHIR

⚙️ US Wide Scaling Requirements for FHIR RESTful Exchange Intermediaries

⚙️ National Standards Based Approaches for Individual Identity Management

- Mediated Patient Matching
- Collaborative Patient Matching
- Networked Identity Management
- Distributed Identity Management



⚙️ An HL7 FHIR Standard Based Solution for Hybrid Intermediary Exchange
- Reliable Routing with Metadata Across Intermediaries

⚙️ FHIR Testing & Certification Platform

⚙️ FAST Security for Registration, Authentication, and Authorization

- UDAP Trusted Dynamic Client Registration
- UDAP Tiered OAuth for User Authentication
- UDAP JWT-Based Client Authentication
- UDAP JWT-Based Authorization Assertions

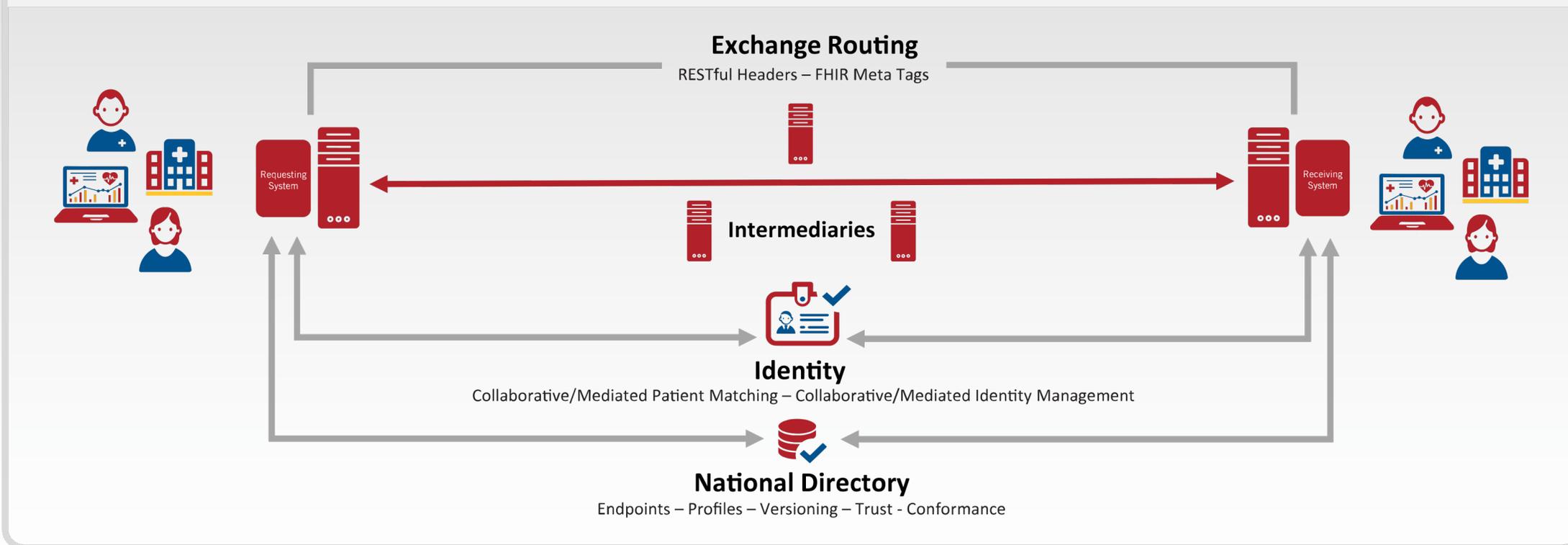


Conceptual Integrated Architecture



Security (Authenticate/Authorize)

UDAP Trusted Dynamic Client Registration - UDAP Tiered OAuth User Authentication - UDAP JWT-Based Client Authentication - UDAP JWT-Based Authorization Assertions



CONFORMANCE & CERTIFICATION (Testing & Certification Program)

PILOTS (FAST Capability Vetting with Existing HL7 Accelerators)

FAST National Healthcare Directory





Overview and status - National Healthcare Directory



BARRIER

The industry lacks a generally available method to find all FHIR endpoints and their associated capabilities and attributes, as well as a common process for maintaining the information and validating its accuracy



SOLUTION

One national source for validated directory information that is available to any national or local directory workflow environment



IN SCOPE

Individual and entity demographics to determine endpoint relationships, computable endpoint information such as accessibility requirements, metadata for routing, trust framework, implementation guides and certification status
Federated access by HIEs, state directories, EHRs
A FHIR standard implementation guide for use of the directory



OUT OF SCOPE

Manual / portal access, creation of a trust framework, non-FHIR related endpoints, application certification process



STATUS

Targeting 2022 Ballot Cycle
Incorporating feedback from industry stakeholders



OPEN ITEMS

Define the minimum viable product (MVP) and outline the incremental steps/roadmap to build a directory of endpoints

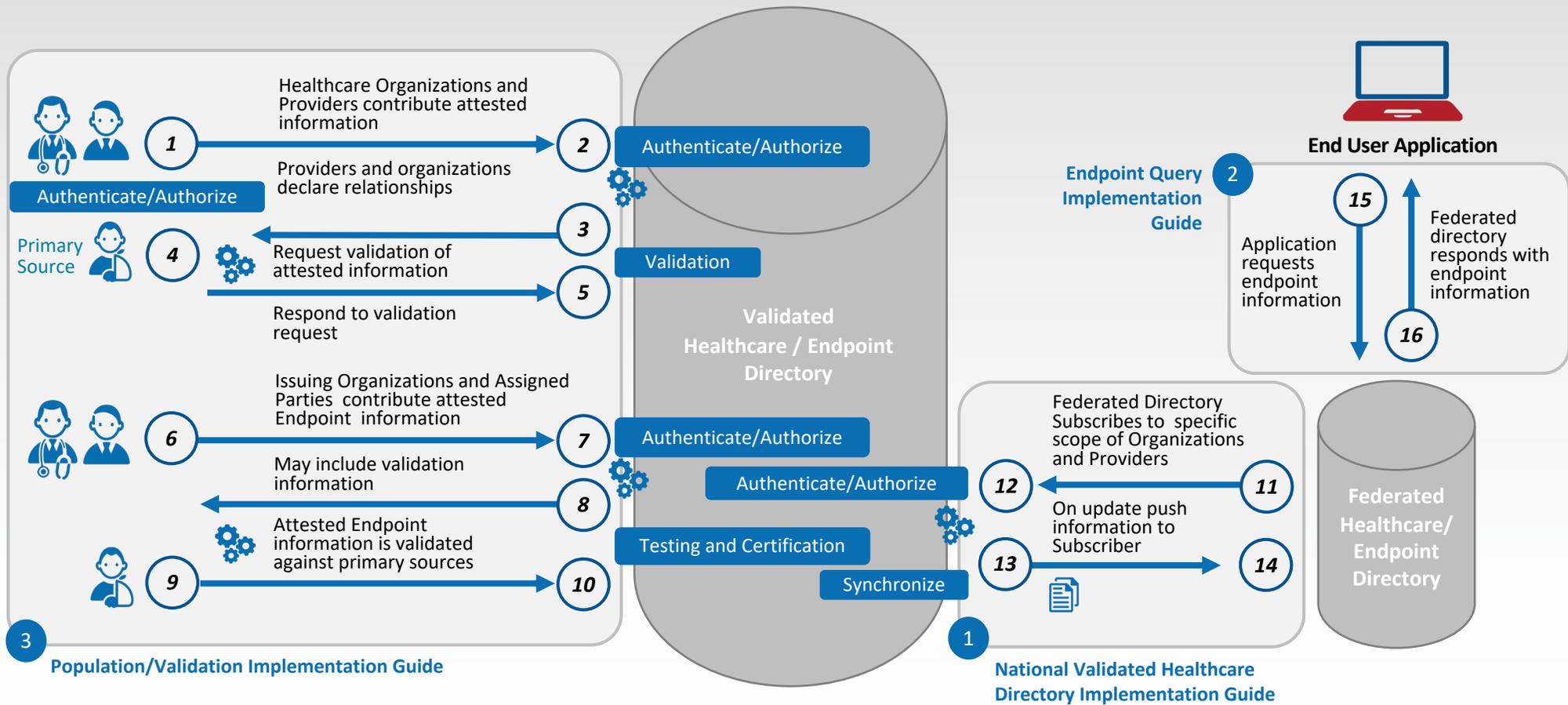


CURRENT SOLUTION

[FAST Endpoint directory proposed solution document](#)
(version 3)



National Healthcare Directory



Project Page:
[National Healthcare Directory](#)

Connectathon Track Page:
[2021-09 National Directory US Realm \(ONC FHIR at Scale Taskforce – FAST\)](#)

Project Scope Statement: [National Healthcare Directory PSS](#)

***FAST* Security for Registration, Authentication, and Authorization**





Overview and status – Scalable Security Solutions



BARRIER

Today, we have limitations on our ability to ensure, in a scalable way, that the requestor of information using a FHIR based information exchange is appropriately authenticated and has the authorization to see the data requested. Current registration processes are manual and too time-consuming to support expected growth



SOLUTION

Leverage existing credentials and authorizations and best practice standards to establish common security processes that facilitate automated exchange and reuse existing infrastructure where possible



IN SCOPE

Trusted Dynamic Client Registration using Unified Data Access Profiles (UDAP)

JWT-Based Client Authentication & Authorization



OUT OF SCOPE

Directory for Endpoint Discovery, Trust Policy Governance, Requirements for a specific architecture, Patient/provider or provider/patient



STATUS

Published IG for HL7 Sept 2021
STU Ballot



OPEN ITEMS

Ballot reconciliation
Continue testing at Connectathons



CURRENT SOLUTION

[FAST Security proposed solution document](#)
(version 3 in progress)



Security for Registration, Authentication, and Authorization

[UDAP JWT-Based Client Authentication:](#)

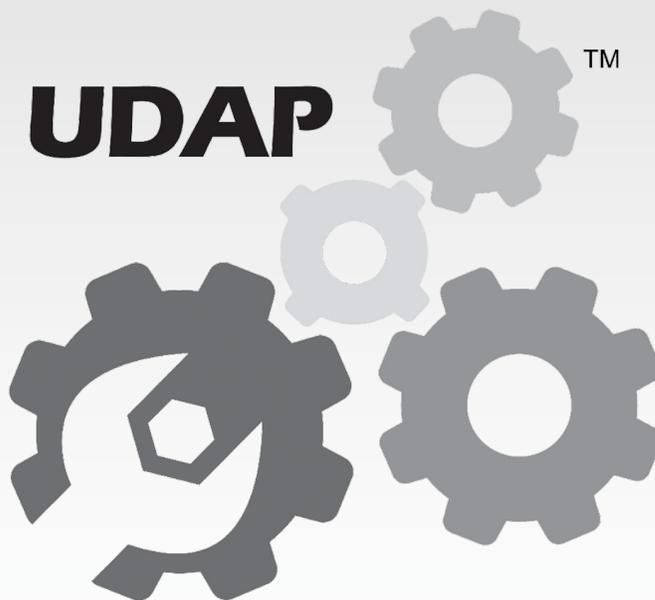
Uses asymmetric cryptography to authenticate client apps

[UDAP Server Metadata:](#)

Endpoint validation for added confidence

[UDAP Trusted Dynamic Client Registration:](#)

Identify and dynamically register trusted client applications, streamlining app management



[UDAP JWT-Based Authorization Assertions:](#)

Extensible JWT-based client authorization grants & other claims incidental to a token request

[UDAP Certifications & Endorsements:](#) Trusted informational assertion

[UDAP Tiered OAuth:](#)

Reusable identities via scalable, dynamic, cross organizational use

Project Page: [FAST: Scalable Registration, Authentication, and Authorization for FHIR Ecosystem Participants](#)

Connectathon Track Page: [2021-09 ONC FAST Security & Identity](#)

Project Scope Statement: [Scalable Registration, Authentication, and Authorization for FHIR Ecosystem Participants](#)

Balloted Implementation Guide: [Scalable Registration, Authentication, and Authorization – Sept STU Ballot](#)



Security for Registration, Authentication, and Authorization

Now What?

- Continue to engage the community in further solution development, testing
- Ongoing collaboration with Carequality, CommonWell, and other stakeholders/implementers
- Continue to participate in HL7 Connectathons
- Incorporate community input from Connectathon testing and ballot comments

Join our public working sessions on the 2nd and 4th Tuesdays each month for ballot reconciliation – view the [project page](#) for details

HL7 Milestone	Due Date
Project Proposal	✓
Project Scope Statement (PSS)	✓
FHIR IG Proposal	✓
Notice of Intent to Ballot (NIB)	✓
Ballot Signup Starts	✓
Final IG Content	✓
Ballot Signup Ends	✓
Ballot Voting Starts	✓
Ballot Voting Ends	✓
Ballot Reconciliation Begins	Sept 2021

FAST Hybrid/ Intermediary Exchange





Overview and Status - Hybrid/Intermediary Exchange



BARRIER

FHIR information exchange is typically performed “point-to-point” between trusted system endpoints. Because healthcare participants may also wish to leverage intermediaries in FHIR exchanges, a solution for conveying routing metadata is needed



SOLUTION

Employ standard methods to convey routing information between exchange intermediaries



IN SCOPE

Exchange using intermediaries in addition to point-to-point connections
Methods for exchanging routing information among participating intermediaries



OUT OF SCOPE

Value set defining exchange identifiers
Capturing provenance information from exchange through multiple intermediary “hops”



STATUS

Targeting HL7 Jan 2022 STU Ballot
Incorporating industry feedback into draft HL7 Implementation Guide



OPEN ITEMS

Continue testing proposed technical approaches during Connectathons



CURRENT SOLUTION

[FAST Exchange solution document \(v3\)](#)



FAST Exchange Barriers to FHIR Scalability



EXCHANGE BARRIERS



IMPLICATIONS

USE OF DIFFERENT IDENTIFIERS

The metadata will need to have a standardized identifier set and attribute name (NPI, Payer ID, etc.)



Routing engines will expect consistent attribute and identifier sets to route information

SYNCHRONOUS & ASYNCHRONOUS MODELS

Both models need to be supported with reliable routing



The model will need to support both push and pull models in synchronous and asynchronous patterns

HYBRID ENVIRONMENTS

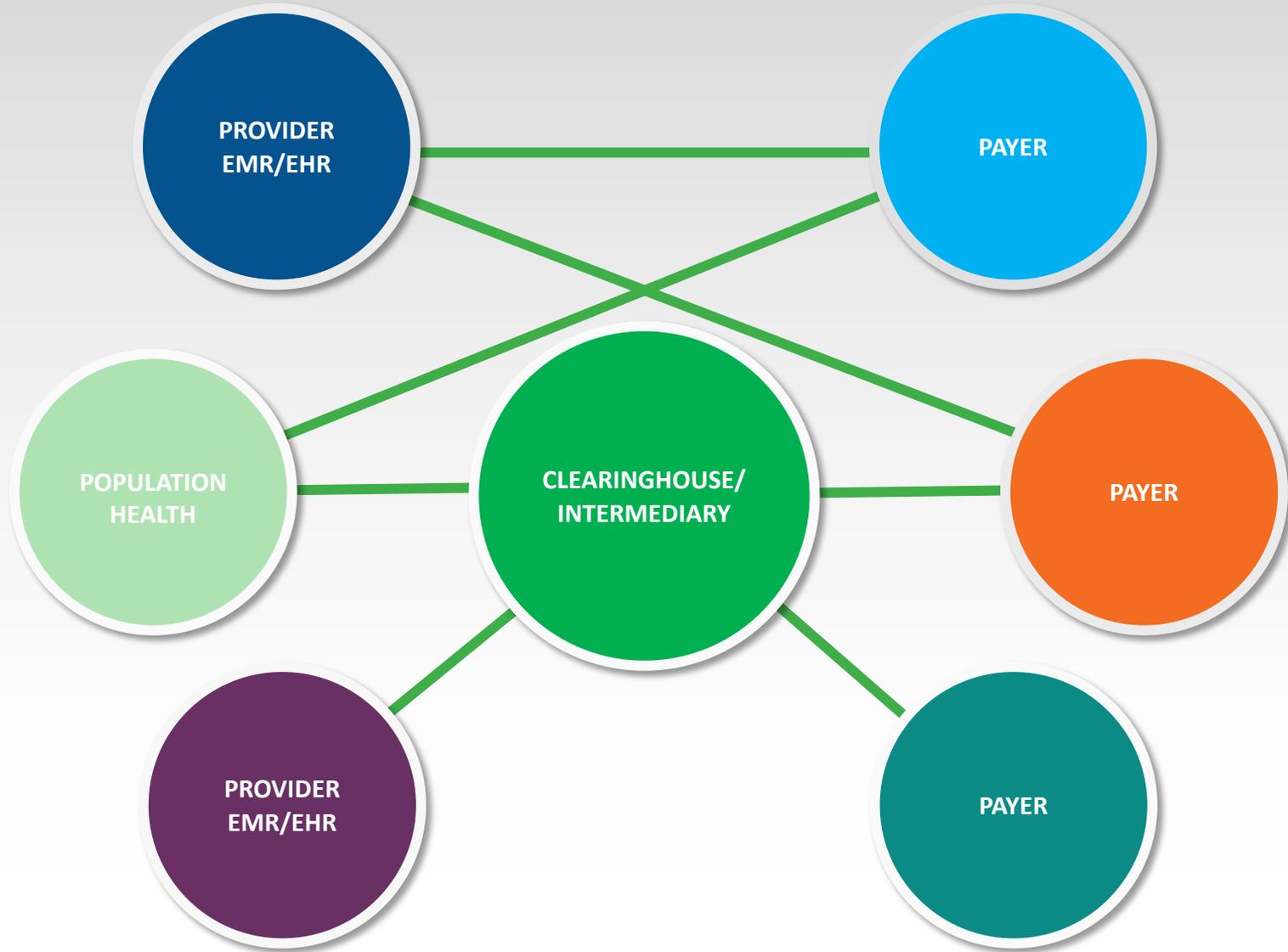
The environment will consist of both dynamic point to point & intermediary models



The model must support transactions over both dynamic point to point and intermediary brokered models

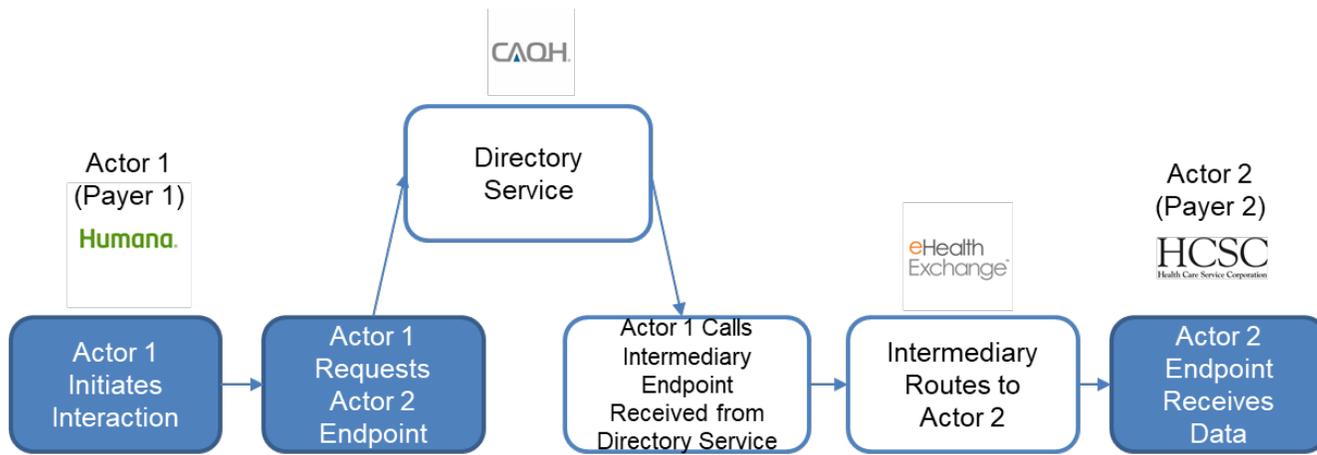


Supporting a Hybrid Model





Hybrid/Intermediary Exchange (Exchange With or Without Intermediaries)



Project Page: [FAST Hybrid/Intermediary Exchange](#)

Connectathon Track Page: [2021-09 ONC FAST – Hybrid/Intermediary Exchange](#)

Project Scope Statement: [PSS for FAST Exchange Metadata](#)

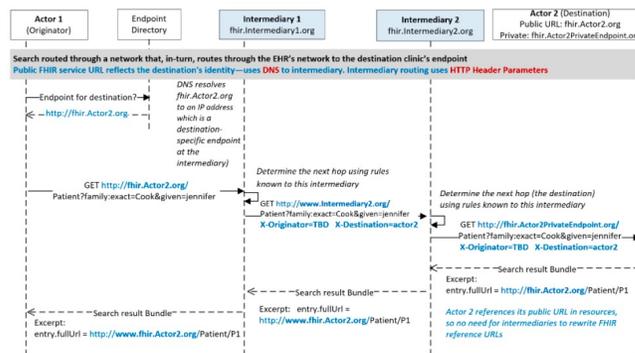
Draft IG: [Hybrid/Intermediary Exchange](#)

Past HL7 Connectathons

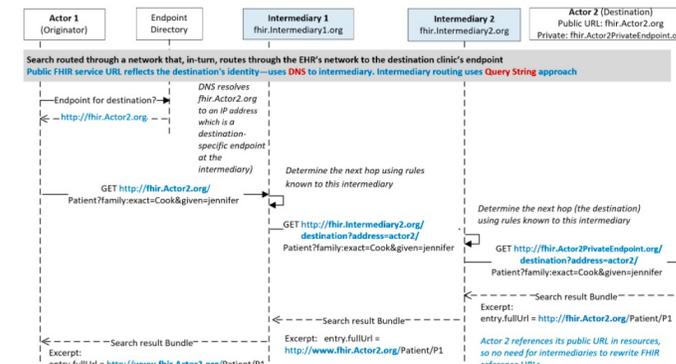
- Jan 2021 – HTTP Header Model
- May 2021 – Query String vs. DNS Model
- July 2021 (CMS) – DNS vs. App Path Models

Sept 2021 Connectathon

Test Scenario 1: Route between two Intermediaries using routing information contained in HTTP Header Parameters



Test Scenario 2 (optional): Route between two Intermediaries using routing information contained in a URL query string





Hybrid/Intermediary Exchange (Exchange With or Without Intermediaries)

Now What?

- Incorporate community feedback/discussion into IG development
- Continue to engage the community and intermediaries in further solution development, testing
- Continue to participate in HL7 Connectathons
- Finalize the Implementation Guide

Join our public working sessions on the 1st and 3rd Tuesdays each month – view the [project page](#) for details

HL7 Milestone	Due Date
Project Proposal	✓
Project Scope Statement (PSS)	✓
FHIR IG Proposal	✓
Notice of Intent to Ballot (NIB)	October 31, 2021
Ballot Signup Starts	November 8, 2021
Final IG Content	December 5, 2021
Ballot Signup Ends	December 8, 2021
Ballot Voting Starts	December 10, 2021
Ballot Voting Ends	January 9, 2022

FAST Identity Management





Overview and status - Identity Management



BARRIER

The industry currently employs a range of patient matching and identity management processes with inconsistencies and limited scalability as volume and the number of participants increase



SOLUTION

Establish a set of patient matching and identity management patterns and best practices that the industry can adopt to reduce the variations that exist today and provide a bridge to new approaches in the future



IN SCOPE

Patient matching during payer/provider interactions: *Mediated Patient Matching*

Patient-directed workflows focusing on identity management: *Networked Identity Management*



OUT OF SCOPE

Patient as a requester or responder, contractual arrangements. (Security and directory considerations are addressed by other FAST solutions)



STATUS

Targeting 2022 Ballot Cycle

Incorporating feedback from industry stakeholders



OPEN ITEMS

Define Implementation Guide scope and test proposed solutions during Connectathons



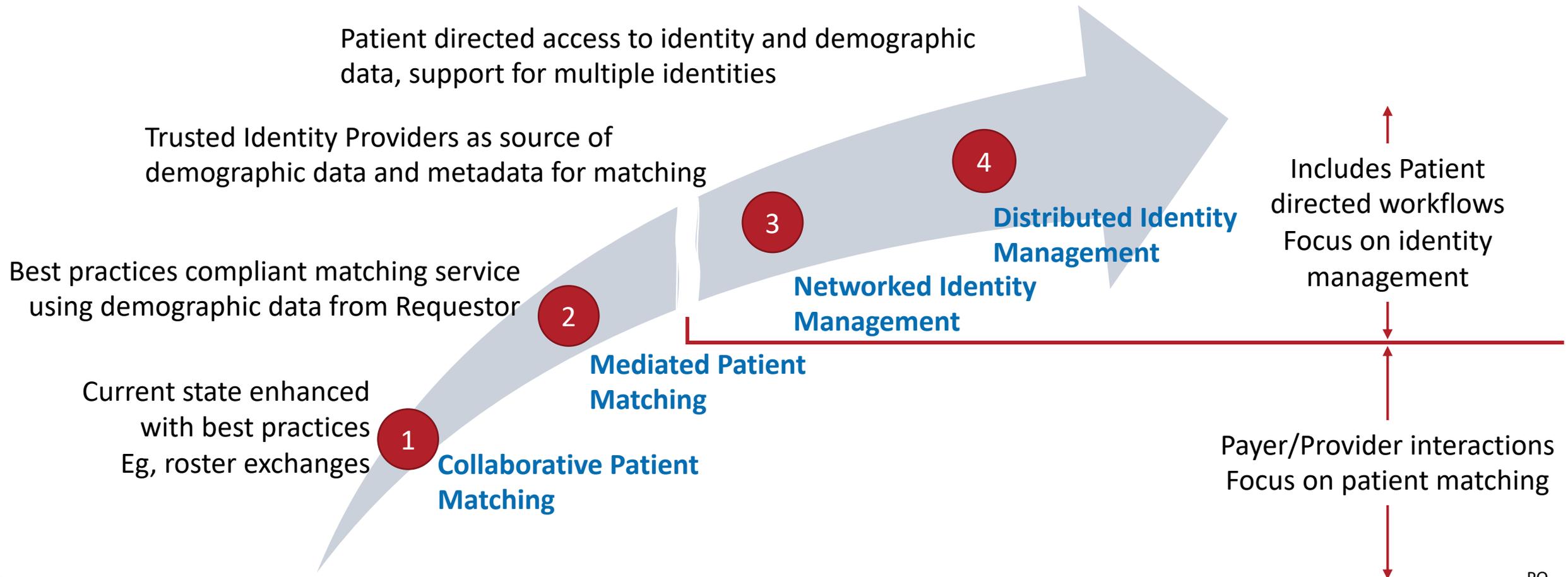
CURRENT SOLUTION

[FAST Identity proposed solution document](#)
(version 3 in progress)



Solution Options: Low to High Complexity

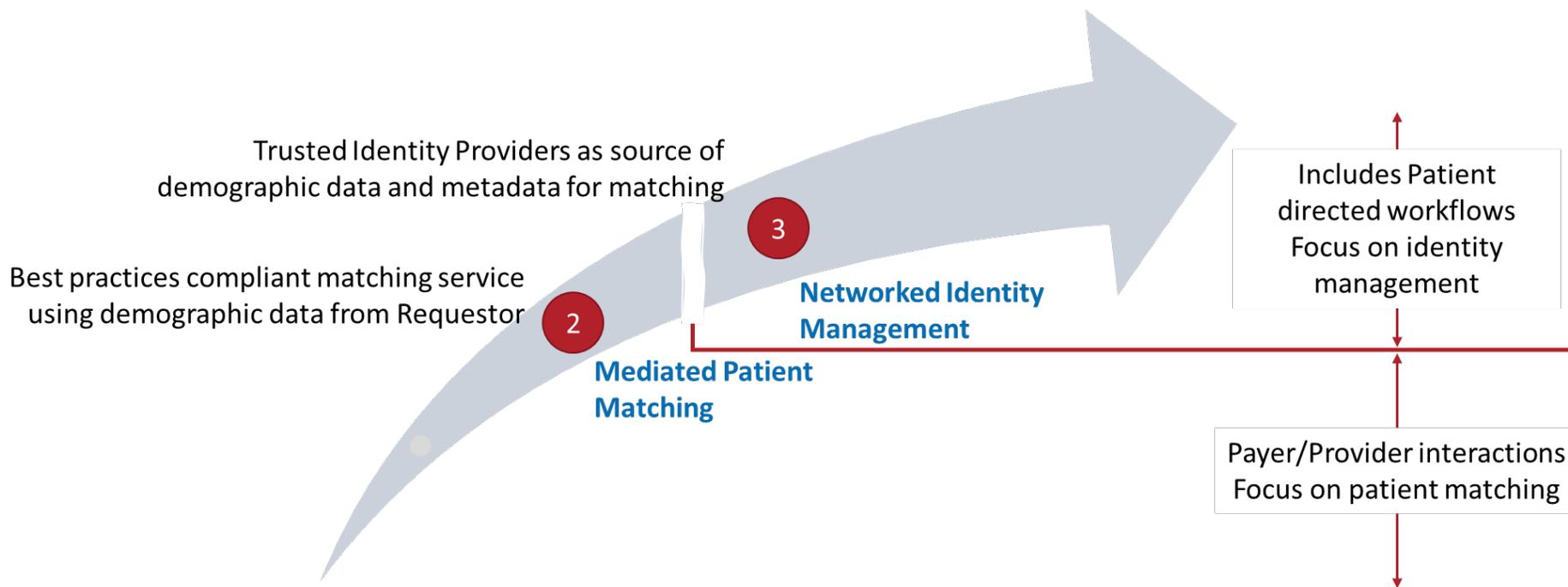
Multiple options progressing from lower to higher complexity (technical and process)





Interoperable Digital Identity & Patient Matching Capabilities

Solutions 2 and 3 have been prioritized for further development as they are the most likely to be implementable in the near future.



Project Page:

[Interoperable Digital Identity & Patient Matching Capabilities Project Page](#)

Connectathon Track Page:

Aspects of the proposed Identity solutions are being tested in the [2021-09 ONC FAST Security & Identity](#) track

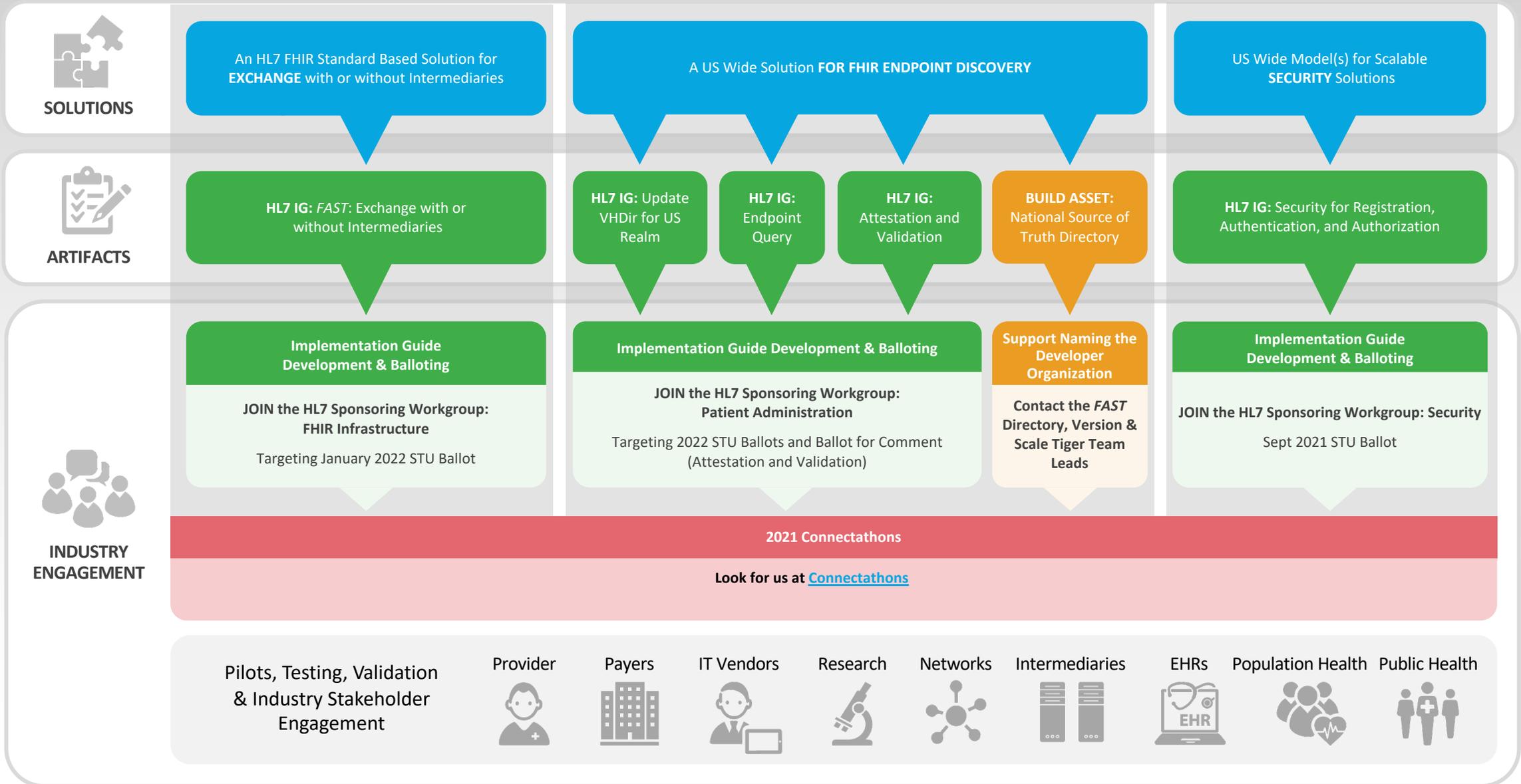
Project Scope Statement (PSS):

[Improving Identity Assurance and Patient Match Quality through Interoperable Digital Identity and Patient Matching Capabilities](#)

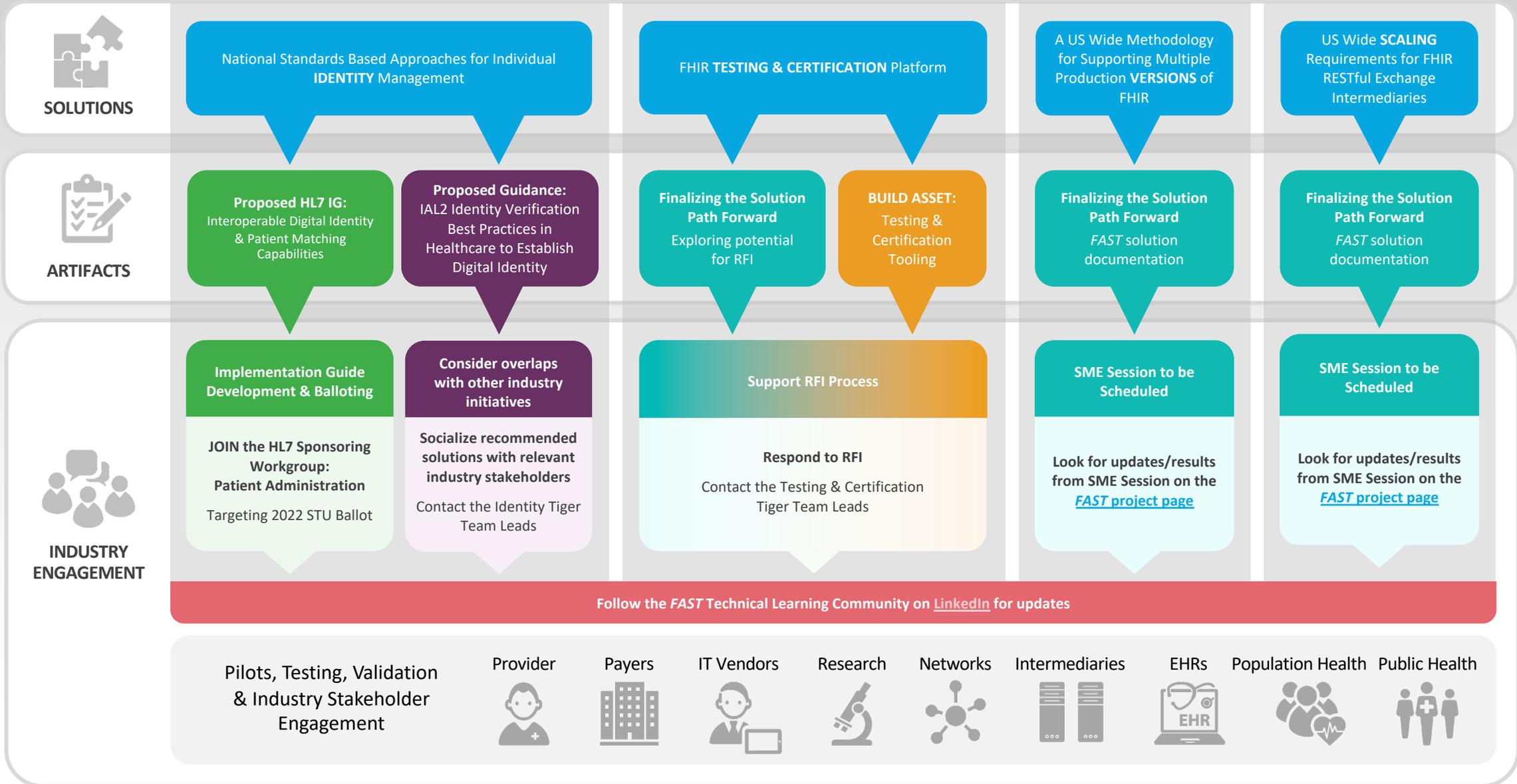
FAST Solutions and Path to Execution



Moving Solutions to Standards Development & Implementation Readiness



Moving Solutions to Standards Development & Implementation Readiness



***FAST* Upcoming Events and Resources**

Speaker: Stephen Konya



Simple Ways to Join the *FAST* Work

<i>FAST</i>: Hybrid/Intermediary Exchange	<i>FAST</i>: Scalable Registration, Authentication, and Authorization for FHIR Ecosystem Participants	<i>FAST</i>: National Directory	<i>FAST</i>: Interoperable Digital Identity & Patient Matching
<ul style="list-style-type: none"> • HL7 Project page https://confluence.hl7.org/display/FHIRI/FHIR+at+Scale+%28FAST%29%3A+Exchange+with+or+without+Intermediaries • Public meetings the 1st and 3rd Tuesdays each month from 1-2 PM ET https://global.gotomeeting.com/join/262996117 • Chat.fhir stream https://chat.fhir.org/#narrow/stream/264775-FHIR-at.20Scale.20(FAST).3A.20Exchange.20with.2Fwithout.20intermediaries 	<ul style="list-style-type: none"> • HL7 Project Page https://confluence.hl7.org/display/SEC/FAST%3A+Scalable+Registration%2C+Authentication%2C+and+Authorization+for+FHIR+Ecosystem+Participants • Public meetings the 2nd & 4th Tuesdays each month at 2PM ET https://global.gotomeeting.com/join/784708421 • Chat.fhir stream https://chat.fhir.org/#narrow/stream/294749-FHIR-at.20Scale.20Taskforce.20.28FAST.29.3A.20Security 	<ul style="list-style-type: none"> • HL7 Project Page https://confluence.hl7.org/display/PA/National+Healthcare+Directory • Public meetings Thursdays at 11 am ET https://zoom.us/j/98424232906?pwd=dHV0T2hrN3o1Q1NQVTNHatVaQURSQTO9 • Chat.fhir stream https://chat.fhir.org/#narrow/stream/283066-united-states.2Fnational.20directory 	<ul style="list-style-type: none"> • HL7 Project Page https://confluence.hl7.org/display/PA/Interoperable+Digital+Identity+and+Patient+Matching+Capabilities • Public meetings the 1st and 3rd Thursdays each month at 2PM ET https://global.gotomeeting.com/join/919790117 • Chat.fhir stream https://chat.fhir.org/#narrow/stream/294750-FHIR-at.20Scale.20Taskforce.20.28FAST.29.3A.20Identity



FAST Artifacts and Resources

Want to learn more about the
FAST HL7 FHIR Accelerator?

Contact fast@hl7.org

CONTINUE THE CONVERSATION!

Join the Technical Learning Community to stay up to date – receive updates about FAST presentations & events, provide additional input and follow our progress.

- [JOIN THE LINKEDIN GROUP](#)
- [EXPLORE FAST ACTION PLAN](#)
- [SIGN UP FOR THE TLC](#)



Thank You – Today's Presenters

Stephen Konya

ONC – *FAST* Lead

Stephen.Konya@hhs.gov

Paul Oates

FAST Chief Architect

Paul.Oates@evernorth.com

Patrick Murta

FAST Chief Architect

pmurta@humana.com

For more information on the *FAST* Initiative,
visit the *FAST* [Project Page](#)

Have any further questions/suggestions?

Please contact fast@hl7.org